

In the Claims:

1-6 (canceled)

7. (currently amended) A method for simulating a missile with a simulator during testing of an aircraft weapon system, the method comprising:

- a) generating a target seeker command position operative to command a target seeker of a real missile to adopt a predetermined position;
- b) generating a target seeker actual position;
- c) generating a trouble signal by determining a difference between the target seeker command position and the target seeker actual position;
- d) determining an error in amplitude and angle of a vector that specifies a direction to a target;
- e) generating based upon the error in amplitude and angle of the vector an actual value signal adapted to the weapons system;
- f) transmitting the actual value to the weapons system; and
- g) repeating steps c-f.

8. (previously presented) The method according to claim 7, wherein the trouble signal is measured continuously in an interface and wherein the error in amplitude and phase angle comprises a difference between a vector S^c corresponding to the target seeker command position and a vector S_0 corresponding to the target seeker actual position, the method further comprising:
transmitting the error in amplitude and phase angle to a missile model in the simulator.

9. (currently amended) The method according to claim 8, wherein for each sample value of the measured trouble signal the missile model calculates a new actual value of the target seeker actual position and transmits the actual value to the interface in the form of an actual value for an amplitude of the target seeker command position vector and a phase angle of the target seeker command position vector.

10. (previously presented) The method according to claim 9, wherein the interface reproduces a continuous actual value signal from the values for amplitude and phase angle received from the missile model.

11. (previously presented) The method according to claim 10, wherein the interface inverts the actual value signal.

12. (previously presented) The method according to claim 11, wherein the trouble signal is generated in a summing unit in the weapons system by summing the signal from the weapons system which gives the position for a commanded target and the inverted actual value signal in a summing unit.

13. (previously presented) The method according to claim 7, wherein simulated conditions are utilized to affect input to a missile control.

14. (previously presented) The method according to claim 7, wherein the trouble signal

is utilized as a control signal for the target seeker.

15. (previously presented) The method according to claim 8, wherein the interface generates time discrete signals.

16. (previously presented) The method according to claim 8, wherein the interface receives time discrete signals.

17. (new) A method for simulating an actual missile with a missile simulator during testing of an aircraft system comprising a weapons system, wherein the actual missile is controlled from the weapons system by an error signal in a control loop by the error signal positioning a target seeker in the missile and through the sending back of the a position of the target seeker to the weapons system via an actual value signal, the method comprising:

- a) generating with the weapons system at least one signal operative to command a target seeker of a real missile to adopt a predetermined position;
- b) with a missile simulator measuring an error signal in a control loop, generating an actual value for the position of the target seeker, and sending an actual value to the weapons system;
- c) calculating a new error signal for the control loop;
- d) repeating steps b and c.